

ICI

magazine

December

1967



ICI

magazine

Volume 45 Number 339

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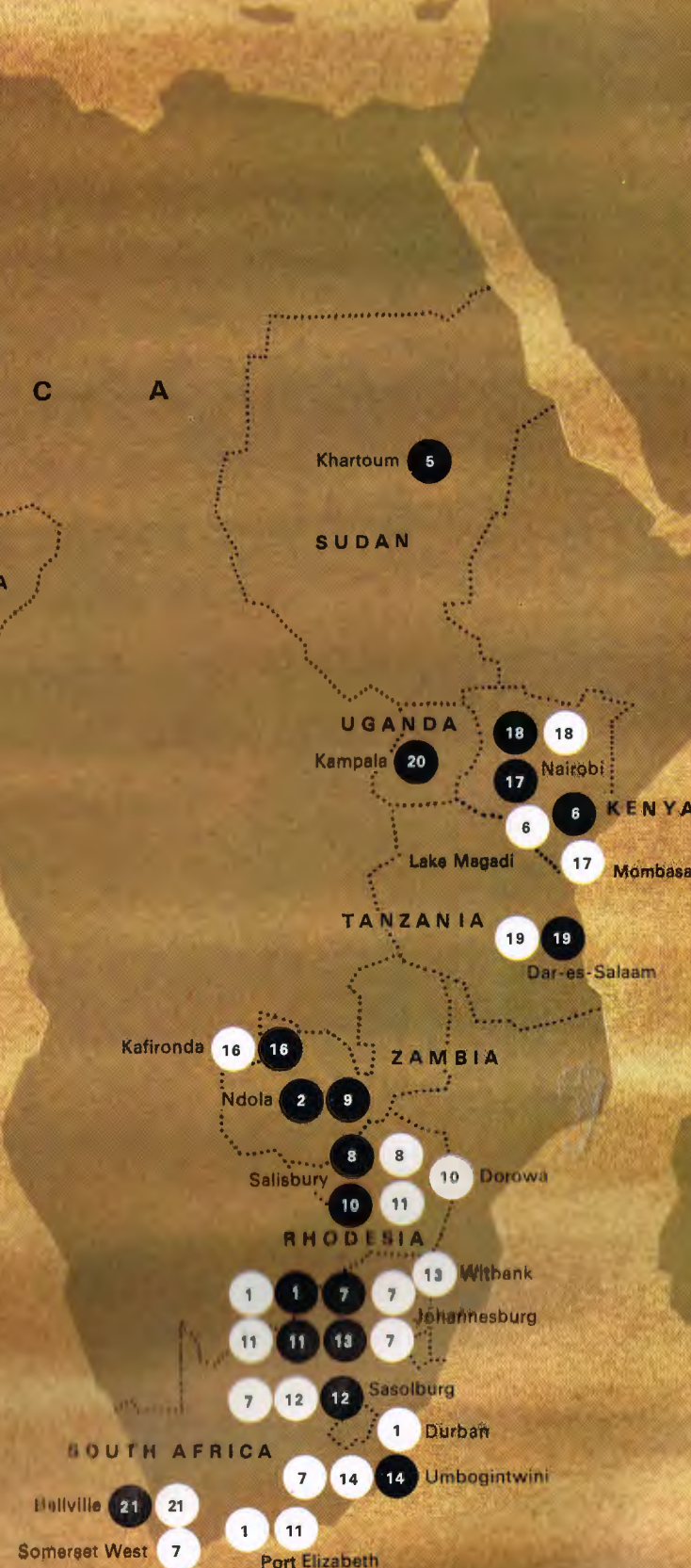
Hats treated with ICI water-repellent silicones are tested in this technical service laboratory at Nobel Division's Ardeer factory in Scotland
Photograph: Michael Taylor

Note

This issue carries the date of December only instead of December/January. We are changing publication dates so that the first issue of each year appears in January. Next issue: January/February 1968

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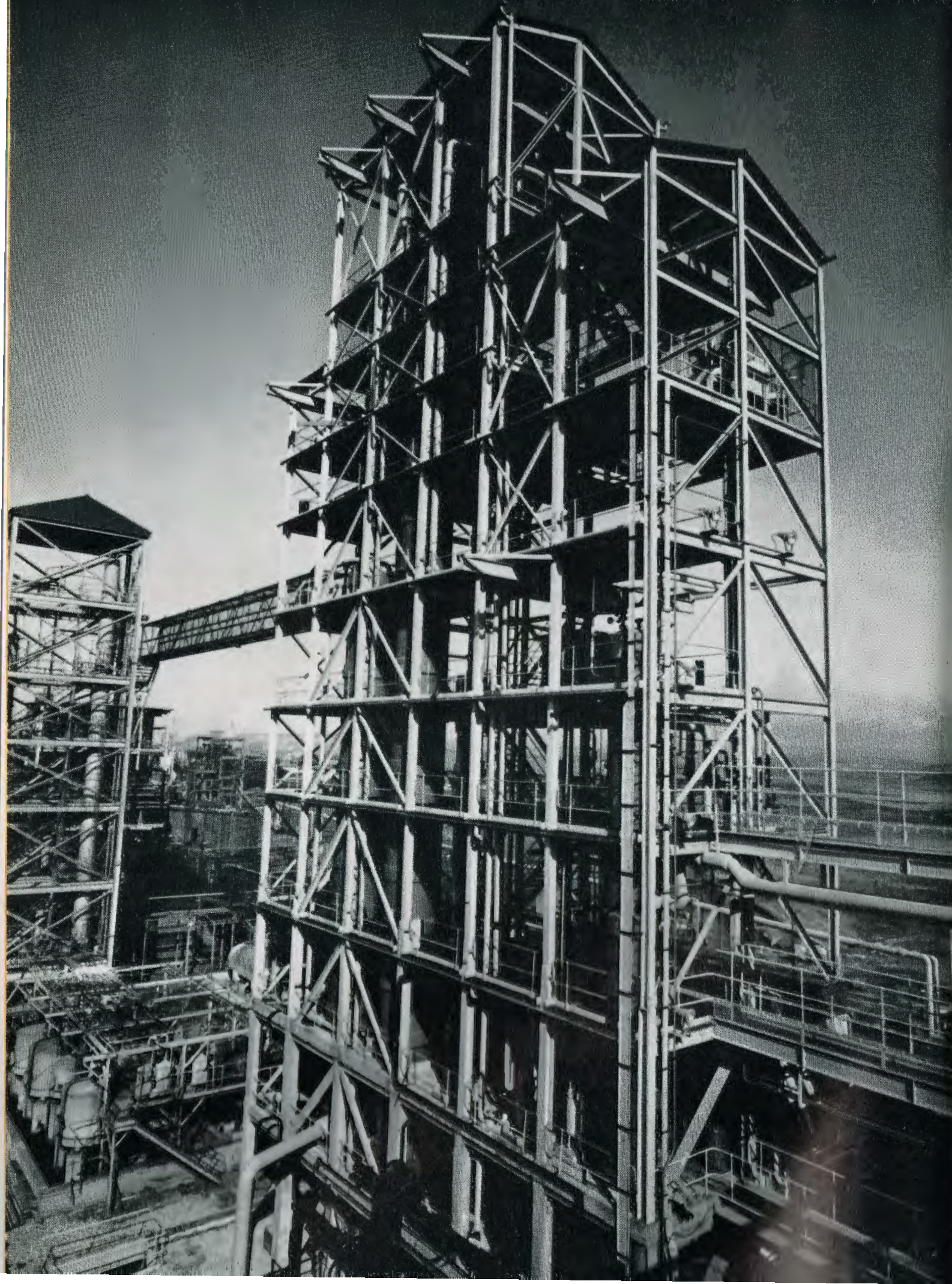
ICI in Africa

- Main Offices
- Factories

ICI Subsidiary Companies

(Some companies sell ICI exports (S), others manufacture locally (M) and some do both.)

- 1 ICI (South Africa) Ltd. and I.C.I. South Africa (Pharmaceuticals) Ltd.: S, M
Factories at: Amanzimnyama (Durban) - "Arlac", silicone emulsions; Port Elizabeth - zip fasteners; Alberton (near Johannesburg) - pharmaceuticals; I.C.I. Zambia Ltd.: S
- 2 Imperial Chemical Industries (Export) Ltd.: S
- 3 Imperial Chemical Industries (Export) Ltd.: S, M
- crop protection products
- 4 Imperial Chemical Industries (Sudan) Ltd.: S
- 5 The Magadi Soda Company Ltd.: M - salt, soda ash
- ICI Associated Companies
- 7 African Explosives and Chemical Industries Ltd.: S, M
Factories at: Klipspruit (near Johannesburg) - cyanide; Midland (near Sasolburg) - plastics, "Arlon", chlorine products; Modderfontein (near Johannesburg) - explosives, fertilizers, general chemicals; Somerset West - explosives, "Vynide", fertilizers, crop protection chemicals; Umbogintwini (near Durban) - fertilizers, PVC, Perspex, crop protection and general chemicals
- A.I.C. subsidiaries and associates:
- 8 African Explosives and Chemical Industries (Rhodesia) Ltd.: S, M - fertilizers and acids, crop protection chemicals
- 9 China (1967) Ltd.: S
- 10 Durban Minerals Ltd.: M - phosphate rock mining
- 11 Dulux Ltd.: M - industrial and decorative paints
- 12 Peroxide Chemicals (Pty) Ltd.: M - organic peroxides
- 13 Rand Carbide Ltd.: M - carbide and ferro-silicon
- 14 South African Titan Products (Pty) Ltd.: M - titanium dioxide
- Covenant Industries Ltd. (headquarters in UK)
- Subsidiaries and associates:
- 15 ICI (Nigeria) Ltd. and ICI Paints (Nigeria) Ltd.: S, M - crop protection products, industrial and decorative paints
- 16 Kafironda Ltd.: M - explosives
- 17 Triangle Fertilizers Ltd. (under construction): M - fertilizers
- 18 Twiga Chemical Industries Ltd.: S, M - crop protection and veterinary products, industrial and decorative paints
- 19 Twiga Chemical Industries (Tanzania) Ltd.: S, M - crop protection chemicals
- 20 Twiga Chemical Industries (Uganda) Ltd.: S
- 21 South African Nylon Spinners (Pty) Ltd.: M - nylon and Terylene yarn



Earlier this year at their Ardeer Factory in Ayrshire, Nobel Division brought on stream major stages in an extension programme which is making them one of Europe's largest silicones producers and could put them well up in the world list. Just over two years after the announcement that £3m. was to be spent on extensions to increase manufacturing capacity by 5,000 tons a year, and right on the target dates, linked production units were commissioned in a series of virtually trouble-free start-ups. Now, as fluids, emulsions, gums, resins, rubbers and greases, more than 100 silicone products will become increasingly available to customers in over 70 countries.

They will go into a wide range of industries for hundreds of different uses: as silicone rubbers with high insulating properties to the electrical and allied industries; as surfactants which control cell size and thereby maintain output standards in making polyurethane foams; to coat baking tins in bakeries so that cakes and bread will slide out more easily; as release agents in plastics moulding processes; or to make rainwear water-repellent. And to all existing applications will be added many more, as yet undiscovered.

ICI silicones are made by reacting methyl chloride from Mond Division with the element silicon, imported from countries which have the cheap electric power needed to process it economically. The reaction produces four types of methyl chlorosilanes, which are separated in distillation columns and from which the main silicone products are made by further complicated processes.

Now a new reactor for producing chlorosilanes is in operation, with new distillation units, a hydrolysis unit and a nitrogen plant. New offices and process control laboratories are in use, and further extensions are being made.

The new silicones plant at Ardeer

To Nobel Division as a whole, then, the start-up of the new plants, known as the Stage V extensions, is a major step along a production path which began with the commissioning of the first silicones plant at Ardeer 12 years ago. And to the men and women who discover, make, test, evaluate and sell these products against intense international competition it means much more.

Dr. Caldwell

For Dr. Walter Caldwell, for instance, it means a solution of the problem which has bothered him most during his three years as Silicones Product Group director: how to meet rising demands from plant already working to capacity.

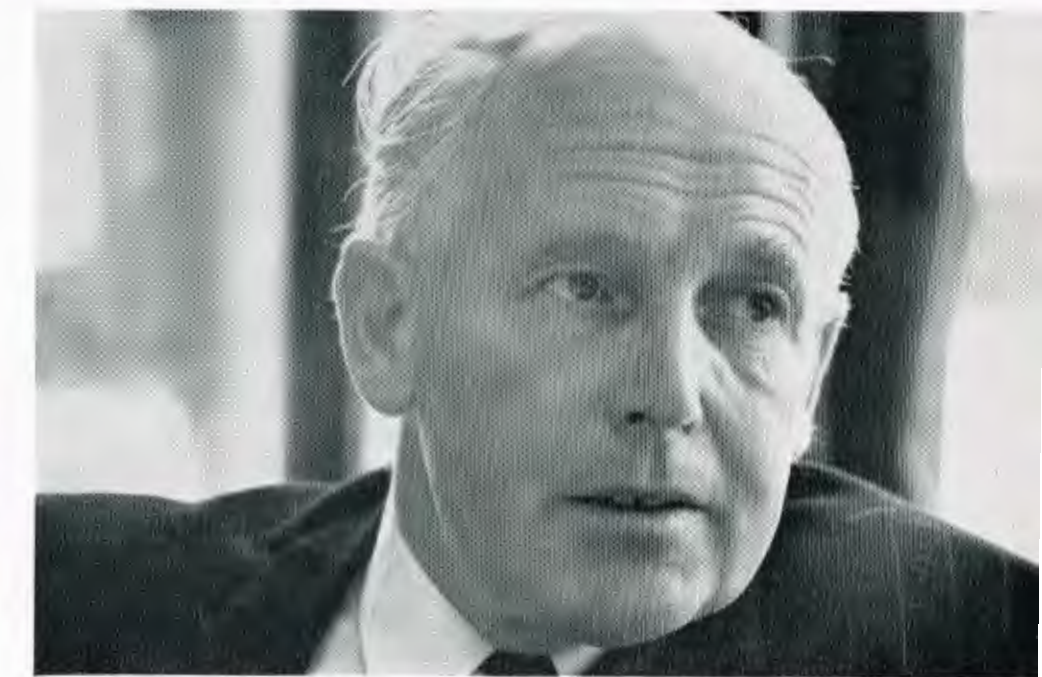
A former research director and still of course a full member of the Nobel Division board, Dr. Caldwell took charge of silicones when the product group system was introduced in Nobel in 1964. For the first time, he found him-

self 'running the whole of a business.'

'I am responsible for the profits of the whole of the Silicones Group, and to me that is one of the attractive things about this group system - I run the business as a whole. Until the group was formed I had always worked only in a functional capacity. In research, my main concern until then, one had to take the long-term view. But running a business, one can see what is happening much more quickly.'

Dr. Caldwell has a Product Group manager, Alex Hutchison, who under him is responsible for silicones' profits, and five functional managers. Four of these cover research, production, technical service and sales. The fifth, Bob Gilmore, looks after 'Flexel,' the Nobel Division space-heating development based on the use of silicone rubbers, and runs it more or less as a sub-group.

'How do we carry out the job? Well, it is all pretty informal. Alex has a



Walter Caldwell, Silicones Product Group Director

Philip Reilly

more scope for silicones

meeting of his managers once a week, when they talk over things which have come up, and I meet them about once a month or perhaps more often if there is something special to discuss. These meetings are informal – no fixed agenda, no minutes, but an exchange of views. We try to cultivate a feeling among the managers that they all have a voice in the running of the group as a whole, not merely in their own special fields.'

Knowing that the new plant will remedy the product shortages of the past three years, Dr. Caldwell is looking to the sources of new business.

'The biggest single factor will be the finding of new uses for silicones. How to do this is one of our major problems, and that is why we are putting so much effort into research, technical service, product development and market research. There is a big research and technical service content in our work, and there is no doubt at all that it pays off. There will be also natural expansion of silicones usage, which is growing by 10–15% every year. Then we can increase our share of the market, and we can best do this by technical excellence, where we are already among the leaders. There will also be a wider spread of our exports.'

Another factor, he believes, is that the representatives who sell silicones are part of the group. 'We think it a great advantage to have control of our own sales. We feel that it is a good thing for our sales people to consider themselves part of the group. We try to make them feel that way; the senior people are given full access to profit figures, group policy is discussed every quarter with the regional managers, and so on.'

Summing up, Dr. Caldwell says: 'I find it very satisfactory to be in the most rapidly expanding part of the Division, and I think that others feel the same. We are still small enough for individuals

to feel that they can make a real and noticeable contribution.'

Dr. Hutchison

To Dr. Alex Hutchison, the Product Group manager, completion of the Stage V extensions means a complete change in outlook; for himself, for others in the group and particularly for members of the sales force.

'With the new capacity available the Division is now an international manufacturer of silicones, able to produce for world markets. So as well as having a new plant we have a new policy, new plans and new targets.'

Because the new plant has a capacity far in excess of what home demand is likely to be for some years to come, the emphasis on exports has been increased.

Customers will be offered better quality, delivery and service than ever,

Alex Hutchison
Product Group Manager



Photograph: Annan, Glasgow

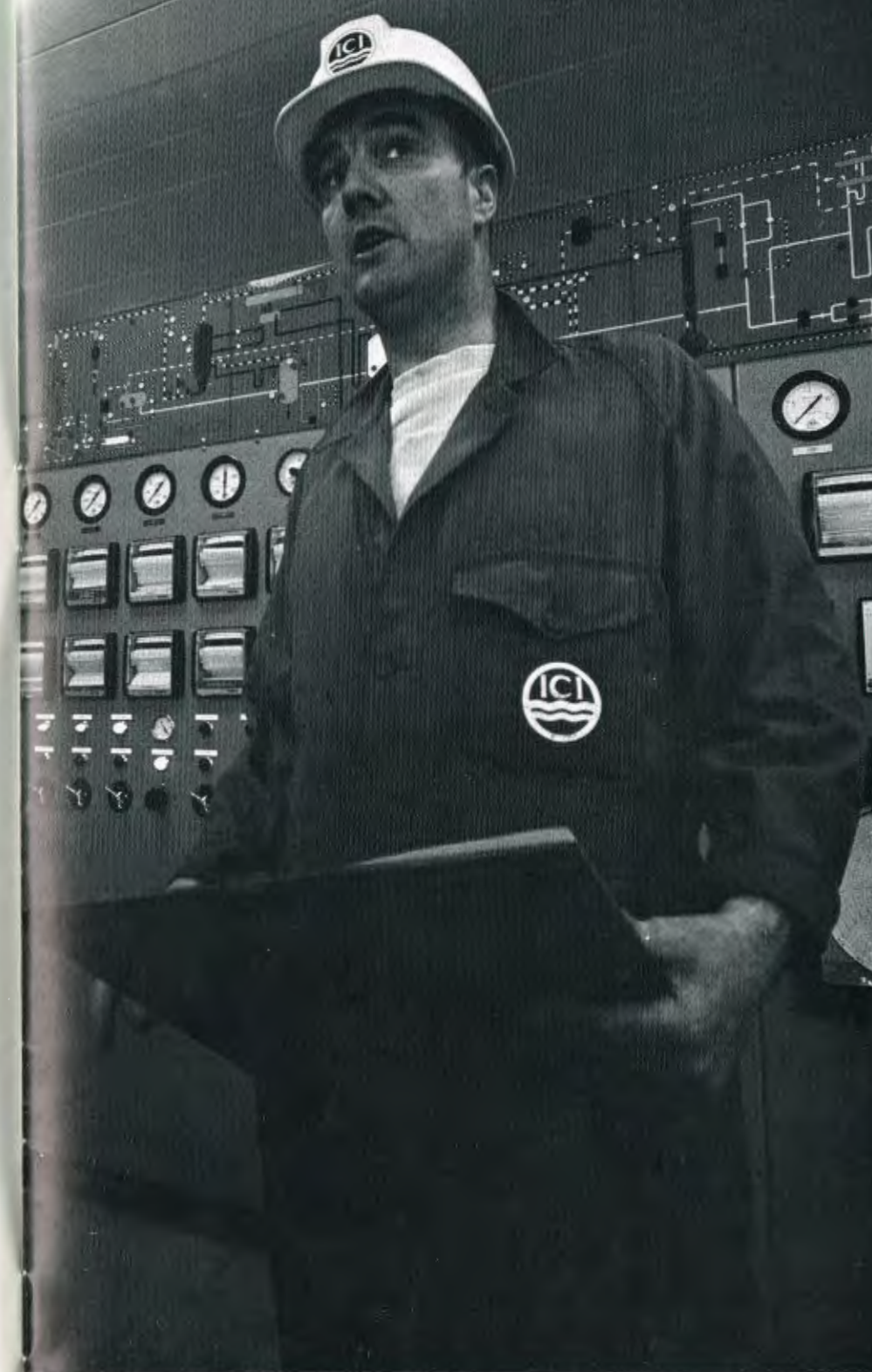
coupled to a steady flow of new products. 'Better quality will come from the new plant's improved production facilities, better delivery from greater stock-carrying capacity, and better service from increased technical support.

'Greater research effort, a deeper concentration on product development and better technical service will mean ploughing back more of our turnover, but in this business it is technical performance which wins the extra sales.'

Looking to the future, Alex Hutchison sees the great asset of the new plant to be its versatility, capable of accepting the manufacture of the steady stream of new and modified products coming forward. He believes that the silicones business is essentially a technical challenge and that the continued prosperity of his product group lies in the strength of its research and development work. 'Technical advance is so fast that any silicones manufacturer would die within five years if he did not have a steady flow of new products.'

Dr. Watt

Dr. Alastair Watt, Group research manager, has found that commissioning the new plant has already meant some reassessment of priorities. 'Some of our priorities have already changed, although in future the plant is more likely to have to change as a result of our efforts rather than the other way round.' The main work of his department is threefold: 'First, discovering new silicone products which are going to be profitable in some application, either known or so far unknown. To turn them into profit we also have to develop them so that they can be manufactured on the plant scale. Second, advising the plant on methods of improving techniques for making existing products. Third, we have to lay the



John MacFarlane, one of the operators who control the new silicones plant from the highly automated control room, has been 28 years in Nobel Division and three years on silicones plants

Mr. Hamilton

The plant managers running the new extensions are responsible to Douglas Hamilton, Group production manager, whose association with the Stage V plants began long before start-up. A chemical engineer, he was plant manager in the chlorosilanes section during commissioning trials of the new Stage IV reactor in 1961. Although small compared with the latest plant in both size and design, this provided the springboard for the next move forward. When a three-man team was set up in 1964 to study the scope of future extensions, Mr. Hamilton was in that team.

'The others were Ron Furlong of Technical Department, the man behind these extensions and the man in charge of the design team, and Ken Wooley from Engineering Department, who became the project engineer. We looked at the requirements for an increase in capacity, we went to the General Electric Company in the US and discussed design and performance data. We put forward proposals, and once these were agreed the basic design was the work of Technical Department, with Engineering Department coming in later.

'Some of my own staff were seconded to assist Technical Department with the start-up, and once the plant had been run up to acceptable operating levels it was handed over to us as a going concern, so to speak. Thanks to excellent work by both Technical and Engineering Departments in the design and the commissioning, we took over quite quickly, and it is now giving excellent performance. No plant ever started up 100% perfect – there have been problems, but in manageable proportions.'

Long before the plant was ready, the training of people to commission and run it was studied and schedules prepared. A Carmody plant simulator was borrowed from Agricultural Division, and everyone involved, technical staff, foremen and process operators, went through intensive courses in which process situations were simulated, from smooth running to complicated emergencies. 'This contributed in a big way to the very competent performance all round, as did the planning. The number

foundation of new chemistry, as opposed to new products, and ensure adequate patent cover to protect our commercial position. There are of course other subsidiary activities also.'

Dr. Watt has a strong research team under his control, with qualifications in chemistry ranging from national certificates to Ph.D.s. Their work has presented opportunities for getting into big, profitable markets – surfactants, paper treatment, release agents – and for making other improvements. 'There has been continuous development right across the board – emulsions, antifoam

agents, rubbers, resins – all produced with properties which are better than those of competitive products.'

For the future, he sees the research effort moving more towards the needs of big industries, those with large outputs and a possible need for large tonnages of silicone products. They will probably include agriculture, synthetic fibres and paints. 'That is how the pattern will develop. When we consider our research effort we look at the potential turnover and the potential operating margin. Then we relate the potential profit to the probable research effort required.'

more scope for silicones

of people needed, who they should be, how they should be trained – all were taken into account.'

Now from his office in the new block, which was designed by Sir Basil Spence, Mr. Hamilton manages the plants with a highly-skilled staff of plant managers and foremen. Operation of the new units is controlled from one highly-automated and instrumented control room at the southern end of the Ardeer site. From here the plant operators can see all the main parts of the plant.

The pattern of operation is defined by annual sales forecasts, made each autumn. 'Sales Department come forward with their forecast, divided into the various products. This gives us an overall tonnage as well as a split into individual products, so that we can set the basic level of chlorosilanes production. We then allocate manpower, ser-

Douglas Hamilton
Group Production Manager



vices and so on, related to sales requirements, across the entire plant site.

'All this has to be flexible – it is after all a forecast – and changes may have to be made. New products come along, and we have to relate sales needs to what can actually be achieved through the most efficient operation of the plant.'

As market demands increase, the extensions should move further towards full operation. This will provide new jobs – as many as 50 in the short term and later up to 100 – and will present new technological challenges on plants already highly complex and demanding very high standards in both operation and maintenance.

Mr. Pollok-Morris

Putting the new sales policy into practice will be Jim Pollok-Morris, the group sales manager. 'I am responsible for the profitable sale of silicones, world wide, and for achieving the targeted growth. This is done through five people: two home sales managers, in Manchester and in London; the export sales manager, who from Ardeer operates through ICI companies and agencies throughout the world; the home sales control manager, responsible for distribution, pricing, and administrative matters; and the marketing manager, who is looking into the future.

'Our main problem is to maintain the growth rate achieved in past years. Taking home and export sales together, we have had an average annual growth of over 20% for about eight years now, and we have to try to maintain it and at the same time keep up profitability by keeping prices at the right level. Both present considerable problems.'

Selling in the UK is done by technical sales representatives in the two regions, for the most part covering the whole product range within fixed geographic

areas. 'Because silicones are difficult and complicated to sell, and because the amounts per customer may be very small compared with most other ICI products, we have always believed that they should be sold by people who are 100% on silicones. That was not easy in the earlier days, when we had a small turnover and had to use "part-time" people who also sold other products, but the situation has changed.

'Much the same has applied overseas, so now we have full-time salesmen in many countries and others elsewhere who are building up business while also selling some other products. We train them here at Ardeer so as to make them specialists in silicones.'

Dr. Cunningham

'Since I joined the Group in 1963 the departmental budget has trebled.' This, thinks Dr. Ken Cunningham, technical service manager, indicates the importance attached to technical service and development. About half the department's time is spent on customer service and half on product development.

Because so much of their work is on product development, people in the department spend less time on technical service visits than their opposite numbers in some other ICI Divisions. Equally, many technical service queries can only be answered by intensive work in the laboratories, but this has not prevented someone like Dr. W. W. Cuthbertson, head of the textile section, from travelling recently throughout Scandinavia and Western Europe, as well as to Hungary, Bulgaria, Yugoslavia and Rumania.

Because the volume of work is directly related to turnover, the building of the Stage V extensions will inevitably lead to greater activity in both product development and technical service.



Norrie Orr, an experienced process operator on silicones, prepares a silicone rubber in the elastomers building

Some of this will be in products where silicones will create completely new technologies and some will be by displacing existing products. This represents one of the most interesting aspects of his work to Ken Cunningham – that so often the silicones are challenging well-established products and are being accepted by customers. Sometimes this is because the customers themselves ask if there is a silicone product to help in a particular application, but often it is because the Division has created new products and developed uses for them.

Taken together, these are the reasons why he believes that 'within five years from now about 50% of the Group's business will be in products we are not selling at present. The greatest surprise on coming into silicones was to find that any group could operate so wide and diverse a product range, where each product demanded its own technical expertise to result in successful promotion. Then I realised that it is the product group system, operating in this way, which has led to such a satisfactory expansion. It has generated new growth.'



This simple experiment by Technical Service Department shows that when heated on an electric element a sample of tubing made from natural rubber burns and begins to melt. The other, of silicone rubber, resists the heat longer and also retains its insulating qualities

more scope for silicones

the petrol is imperial

About two years ago HOC Division decided to develop retail sales of petrol in the North of England and the South of Scotland. Petrol has been a Billingham product since 1935, but until quite recently it had been sold only to oil companies. Selling direct to motorists through retail outlets is thus a new departure. We asked two of the men mainly concerned how the whole project began and what progress is being made. One, Mr. J. S. Taylor, is petrol sales manager; the other, Dr. J. H. Gilks, is technical manager, Petrol, Technical Service and Market Development.

Loading a 4,000 gallon capacity tanker with Imperial petrol



Photographs: J. Selwyn Fell (HOC Division)

Mr. J. S. Taylor, petrol sales manager

Editor: ICI have been producing petrol on Tees-side since 1935. Why was the decision to sell it to the public not made until 1965? And why did you decide to sell direct?

Taylor: We have available petroleum fractions from our petrochemical operations which are excellent components for petrol but are not particularly suitable for chemical use. Given the requisite quality overall, we can blend these and can make a considerable quantity of petrol from them. For many years we sold it to the major oil companies, who as the principal retailers of petrol, with all their outlets throughout the country, could absorb it better. However, commercial conditions changed, and two or three years ago it seemed to us that it would be more profitable to distribute direct to the retailer. Experience has confirmed this.

Editor: What grades of petrol do you sell, and which sell best?

Taylor: We sell three grades: 92, 95 and 98 octane, and it would be difficult to say whether we sell more of 95 or 98. These are the grades most suitable for modern motor cars.

Editor: How has the build-up of this market progressed?

Taylor: Within the last two years, starting from zero, we have acquired about 100 retail outlets. These have been sited mainly within 100 miles or so of Billingham. The siting of a particular outlet is governed by our assessment of its growth potential, and the type of site has been chosen to enhance the good name of ICI.

Editor: How does commercial practice differ from HOC Division's normal activity?

Taylor: This is the first excursion of Heavy Organic Chemicals into the consumer market. We are dealing with customers whose livelihood depends upon obtaining, quickly, enough petrol to satisfy their customers without running out. Customers' stocks are kept at much lower levels than could be considered reasonable in the chemical industry, which calls for a very rapid order-receiving and dispatching system. In addition, because customs duty of 3s. 7d. per gallon has to be paid when a road tanker is loaded, credit control is important.

Editor: Why can you sell this petrol at prices well below normal?

Taylor: Because we do not offer on a nation-wide basis but restrict our activities to northern England and southern Scotland; we do not have large distribution costs; and we do not sell in areas of very low population. All petrol companies reduced their prices in March this year, and at present our retailers sell at roughly 2d. a gallon below the major oil companies' prices. We merely indicate a suitable price for a particular area. What the filling-station owner charges is his own affair.

the market for imperial



Editor: *How do you organise your selling operations?*

Taylor: Our representatives go out making either 'cold' visits or visiting garages who have written in expressing interest in selling Imperial petrol. Sites are selected on the basis of their own quality plus their location, bearing in mind both main roads and population. Once the site has been approved and arrangements satisfactory to both sides agreed, we offer petrol supplies at our standard prices. Having agreed to supply them with petrol, we then supply them with a prominent Imperial sign and other normal forecourt aids. Some initial advertising is planned and, if the customer wants it, we provide an ICI representative on their opening day. Orders, once accepted, are placed directly on the Distribution Department through our own outside telephones. They then programme deliveries and liaise with the contract hire fleet.

Editor: *How do you run the delivery fleet?*

Taylor: The fleet is under the complete control of the Division, and we programme the activities of the tankers. On that basis we ask for 48 hours' notice of a requirement, but with customers near at hand we can cut the time down to a matter of hours. The petrol is at Billingham, the contractors send in their vehicles to the filling station there, and the drivers carry invoices in most cases. According to the terms of payment, the driver may collect a cheque at the time of delivery.

Editor: *What is the tonnage of the vehicles?*

Taylor: Tankers at the moment carry 4,000 gallons. We prefer our outlets to be capable of taking full tanker loads, which means storage for about 7,000-8,000 gallons. Most petrol stations which are free appear to have very small storage, sometimes less than 1,000 gallons.

Editor: *Are you encouraging these stations to build up their storage capacity?*

Taylor: Usually when a garage changes over to Imperial its sales increase to such an extent that if their storage is small they have an Imperial tanker permanently on their forecourt. This interferes with their sales to such an extent that they often do increase their storage! There are other incentives, too: their margin increases if they can take full tankers. However, it is only among the earlier stations to be taken on that a storage problem exists. New stations must have adequate storage to take full loads before we agree to supply them.

Editor: *Are deliveries affected by the way the chemical industry itself works?*

Taylor: We are organised to deliver any day of the week, at any hour of the day. Our Distribution Department is open on Saturday mornings, Bank Holiday mornings, and sometimes on Sunday mornings. This is where we materially differ from

the sale of chemicals. But this is no different from any other petrol supplier, and it would be seriously to our disadvantage if we didn't work this way. We have always aimed at a first-class delivery service, and because the majority of our garages open seven days a week we deliver seven days a week. Sales of petrol are greater at weekends than they are during the week. People seem to run out of supplies more often at the weekends and to need emergency deliveries when normal chemical deliveries just would not be made. We do rest on Christmas Day. It is in the garage's interest, and our own, to keep a good relationship between customers and ourselves, and this is one of the ways in which we can maintain that relationship. The area in which we deliver petrol is determined purely by distribution costs, plus a consideration of which price zone the customer is in.

Editor: *How do you see the future of this operation?*

Taylor: Our intention is to sell in the long term that quantity of petrol which we can make economically. This quantity is limited, so we shall not expand indefinitely until we become a national petrol company.

Safeguarding the customer. A sample of Imperial petrol is taken for testing in the Division's laboratory at Billingham



Dr. J. H. Gilks, Technical Service and Market Development Department

Editor: *With your keen price advantage, why confine your marketing to the North of England and the South of Scotland?*

Gilks: We see this area as the one in which we can satisfy the demand most economically from the material we have available. It can also be served very conveniently from Billingham, so that all our operations are controlled from the Division Headquarters, while costs do not rise through supplying very outlying areas. We don't intend to go further than a radius of 100 or so miles from Billingham, the distance that can be adequately served from our own Division Headquarters.

Editor: *Within this radius, however, you aim at getting a higher throughput from existing sites?*

Gilks: We are deepening our hold on the market rather than expanding the number of outlets for this area. And we are trying to make each outlet in our circuit more productive. So we are keen to get sites with good storage capacity. This keeps deliveries to a minimum and maintains the highest throughput.

Editor: *What are the qualities of a competitive petrol?*

Gilks: To market a satisfactory quality for the range of cars using the product we have to blend our petrol to meet many scientific requirements. Perhaps the best known of these is the octane rating. For each car there is a minimum value of octane requirement below which the engine will knock or pink. This minimum value can vary even for cars having substantially the same engine because of slight variations in design, condition or tuning of the engine. Knocking or pinking is caused by premature burning of the air/fuel mixture, and if not corrected, by the use of a higher-octane fuel for example, damage may result. We declare the octane rating of each grade at the pump, and these grades satisfy most cars.

Another very important characteristic of petrol is its volatility. We have to vary this property according to the season of the year because it is affected by temperature. In winter, with a petrol which is not volatile enough, there may be difficulty in starting the car. During the summer, a petrol which is too volatile will cause vapour lock in the feed pipe from the

petrol pump to the carburettor. To minimise these undesirable effects, the range of temperatures over which the petrol volatilises is controlled by careful blending. When the weather is cold and the air moist, water condenses in the carburettor and, with the added cooling effect caused by vaporisation of the fuel, ice forms unless there is an additive present to prevent it. The formation of ice stops the flow of petrol to the cylinders, and the engine stalls. A number of compounds, known as anti-icing additives, are used to prevent this effect becoming serious.

We also secure chemical stability by protecting the petrol from oxidation by air during storage. Much of the petrol produced contains components such as olefines (which have high octane values), and these must be stabilised by the addition of antioxidants so that gum is not produced. Finally, we use alkyl lead anti-knock compounds to increase the octane values of hydrocarbons normally blended for petrol.

Editor: *Has the existing chemical know-how been a big asset?*

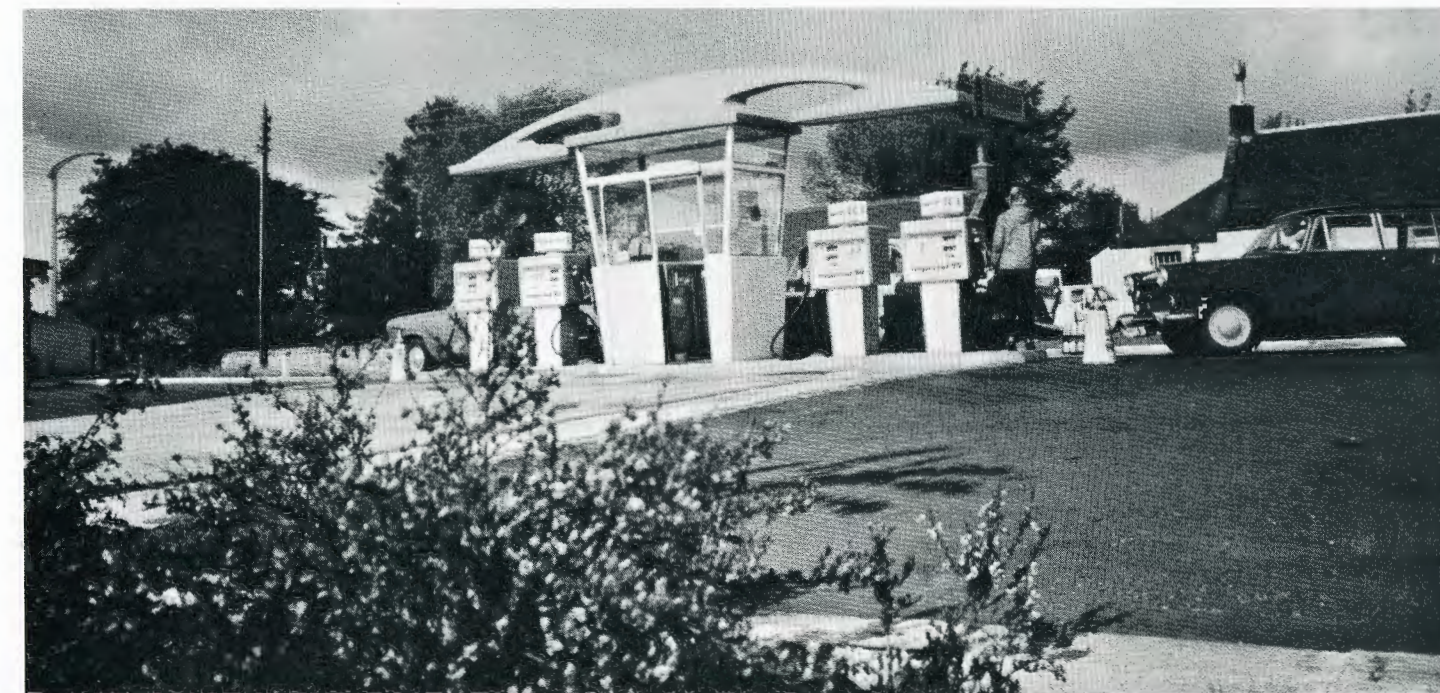
Gilks: Yes, we have access to components not normally available to a standard oil refinery, and these are extremely useful in blending to high quality. We can carry out all analytical operations in the laboratory, in most cases refinements of techniques well-known to the analyst. We also have test facilities which enable us to determine octane ratings on a stationary engine.

Editor: *What else do you do to secure and maintain quality?*

Gilks: Since petrol is one of the few commodities which is purchased without first being examined by the purchaser, and the product is an ICI one, it is most important to maintain high quality throughout the several distribution stages which the product undergoes before reaching the consumer. As a technical service to motorists, we call at our filling stations periodically to take samples. This is to ensure that the quality we supply is in fact the quality dispensed to the motorist.

Our sampling van, which can be seen by customers on the forecourt, bears the label 'Imperial - The ICI Petrol - Quality Control Service.' This service has been well received by garage proprietors (who like their customers to know that quality is controlled up to the point of sale) and by customers themselves.

Bannockburn filling station, Stirling, Scotland



menu for a manual

what the manual says about

Cocktail savouries:

'Because they are appetisers, they should be of exciting but not overpowering flavours.'

Hors d'œuvres:

'Many of the more popular items are very expensive. In no other field can the ingenuity and skill of the cook be applied to such a good effect as in the preparation and service of a good hors d'œuvre.'

Stock:

'The idea prevalent in some quarters that the stockpot is the proper recipient of all culinary debris is wrong.'

Boiling (of fish):

'This term, though commonly used, is a misnomer, since the water in which fish is to be cooked should not do more than *re-boil* after the addition of the fish, the heat then being reduced to allow the fish to simmer until it is cooked.'

Egg dishes:

'The advance preparation of poached or scrambled eggs requires the adoption of a rigid system.'

Meat carving:

'If attempts are made to carve meat direct from the oven, it will be found that the slices will curl.'

Potatoes:

'To produce plain boiled potatoes for a large number of meals is a difficult task, one moreover that is rarely accomplished. It cannot be done in bulk boilers because in them the potatoes, once cooked, will be crushed.'

Vegetables:

'Even when properly handled are quite expensive, and in no other direction are greater costs likely to be incurred through faulty purchasing, bad storage, or inefficient methods of cookery. The basic error which many caterers commit is considering that vegetable cooking is so simple that anyone can do it. In any branch of cookery, the most simple dishes, to be properly done, require as much, if not more attention than the complex dishes, because the opportunities to adjust earlier inattention just do not exist, and in no other field is this more clearly demonstrated than in the cooking of plain boiled green vegetables.'

Early this autumn the latest model of an exclusive ICI product was introduced at a small luncheon for the trade and industrial press. Not so unusual? But here was a lunch with a difference – where the medium of food and drink was indeed the message. The product concerned was a book: the third edition of ICI's own Catering Manual, first published for the Company in 1954, with a second edition in 1957, repeated in 1960. Arising originally from ICI's needs at home and abroad, the Manual from the beginning has enjoyed a circulation far outside the Company and far beyond the United Kingdom too. Published by Barrie & Rockliff at 50s. and printed by The Kynoch Press, the print order of this edition of the Manual is 5,000 copies.

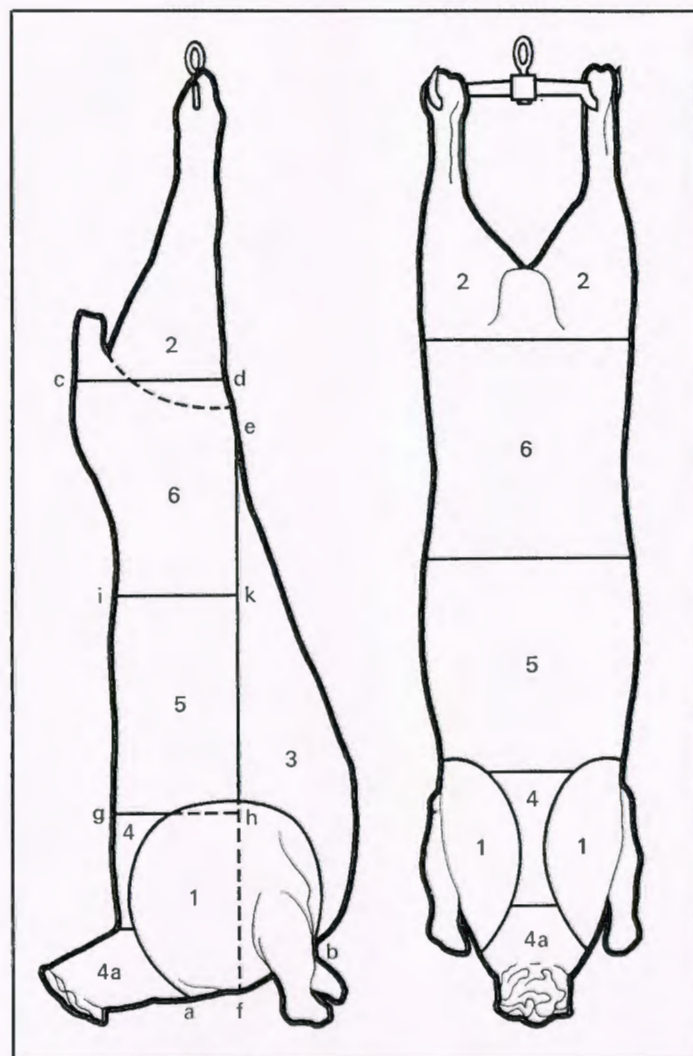
Most of us who turn up day after day to eat in works restaurants or cafeterias never stop to consider just how the food gets to the table or service counter in the right amounts of the right quality, and with a reasonable choice. While planned as before to help the 2750 people employed in the Company's catering service, this latest edition of the Manual reflects more than ever the national changes of taste in food and drink over the last 10 years. The men responsible for the Manual are Reg Stinton, ICI's chief catering adviser, and an editorial committee drawn from catering officers in various Divisions: Fred Anderson, Agricultural Division; Alex Smith, Dyestuffs Division; Alex Hatherill, Plastics Division; and, in the early days, Ken Price, catering officer for ICI Fibres Ltd.

The book as a whole gives a fascinating insight into catering as a management operation – from portion control to display, from purchasing policy to staff discipline, with useful sections on safety and hygiene.

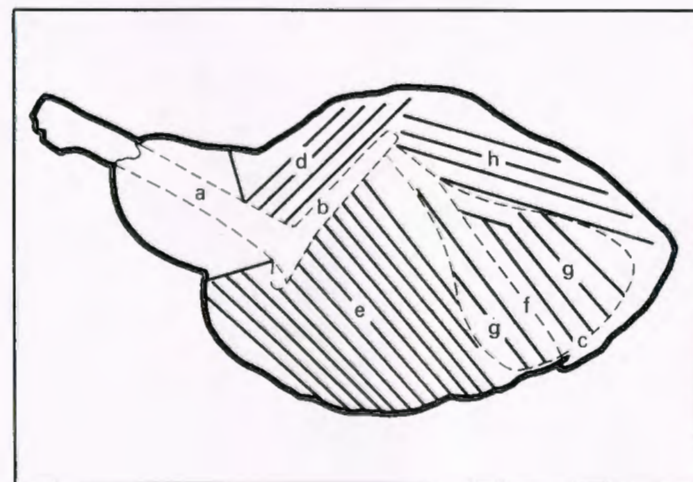
'We have tried,' Reg Stinton explains, 'to publish a work which will help our catering management with their day-to-day problems. Each Company catering man can find in it what he needs. If his menus have been, shall we say, a little unadventurous, the Manual can provide the answer. If cost control in his unit is not what it might be, then this section will be most important. If he seldom does any special functions – for long-service awards, or entertaining visitors – there too a special section can help. One thing the Manual does not provide: guidance on policy, the field in which most readers outside ICI (and there are thousands of those) would probably need most help. Our catering people know the Company's catering policy, and the book is written primarily for them. In any case, the Manual should stay unchanged for 10 years, during which time our policy may be altered.'

Changes in the 1967 edition reflect what Reg Stinton calls 'the national awakening to the enjoyment to be obtained from eating a broader range of foodstuffs – plus the acceptance that catering for industry means much more than the old concept of a canteen.' More dining out, more Continental travel, have changed the customer's ideas. 'No matter where one goes in the country, one sees Chinese restaurants, Italian





The manual devotes 14 pages of text, drawings and photographs to butchery and carving. Carcass of lamb, showing correct lines of dissection. Left, from side. Right, from top



Shoulder of lamb, showing bone formation a, b, c, and order of carving in areas d, e, f, g and h

restaurants, and specialist restaurants of many other kinds, even in areas where one could previously never find them. Since our customers have developed to a greater extent the habit of eating out, it follows that we should conform to this pattern, because they now expect this form of service during their midday lunch periods.

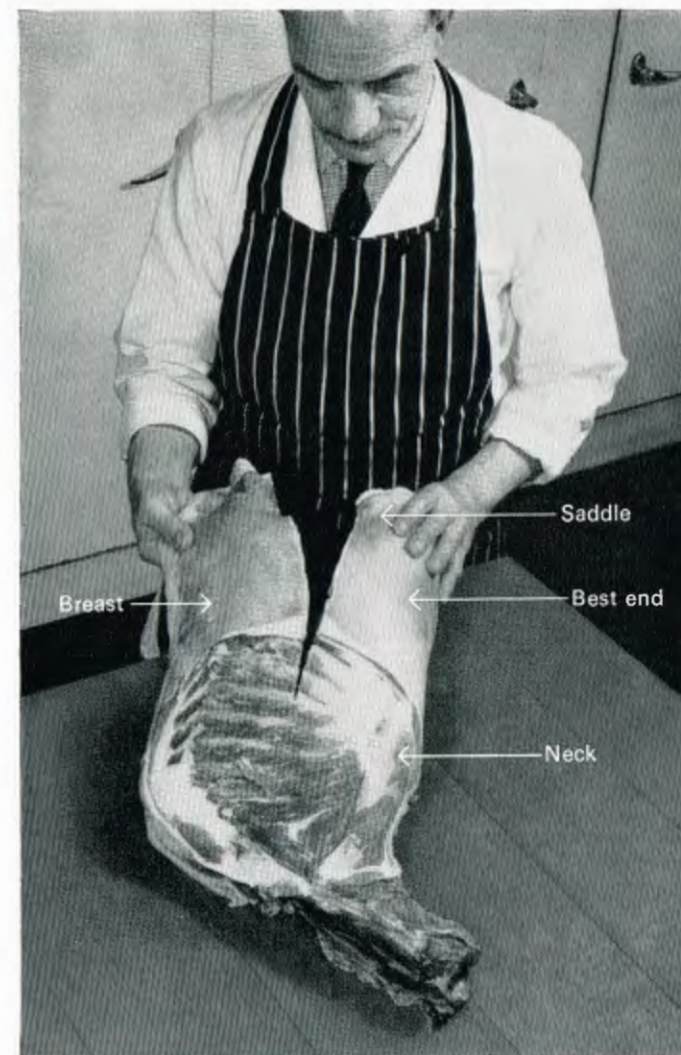
'In certain areas of the Company's business, too, the reduction in working hours, and the consequently shorter meal-times, have brought a demand for lighter, more quickly-served meals, wider in range than the sandwich or the meat pie. We're serving, for example, many more omelettes and similar dishes which have to be made to order. Fifteen years ago this would have been unheard of, but recently I read in the minutes of a catering sub-committee about complaints from people of having to wait while their omelettes are being made. The catering manager concerned was at great pains to point out at the meeting that omelettes had to be made to order, and if too many people ordered omelettes at once, a delay was inevitable. Diners, you know, have two approaches to this problem of waiting. They will sit in a restaurant at night and be perfectly content to wait for ten to fifteen minutes for a dish to be produced, and yet they think we have a magician's wand which will produce that same dish in seconds! But it just is not so. We could, of course, lower our standards by having such dishes made in advance, but we don't believe that is the right approach.'

The editorial committee recognised these changes by altering the balance of the contents in the Manual. There are accordingly more egg and more 'pasta' dishes, more poultry dishes, more fish dishes, and a wider range of sauces.

Revision was a long and complicated task. Not only did the committee rewrite the whole of the text and enlarge the sections on cost control. They tested every single recipe – all 579 of them – at Company catering units throughout the country. 'First,' Reg Stinton explains, 'we rejected all the recipes in the old manual no longer in use. Then we asked Divisions to submit recipes for dishes which had proved popular in their units. These were prepared and tested for (a) palatability, (b) cost and (c) portion sizes, before the committee decided whether or not to adopt them. Every dish had to be accepted on each count – or varied to suit our requirements. So we worked on through every section of the Manual, resolving our differences by discussion and by practical demonstration.'

'The photographs are a good example of this collaboration. They show dishes prepared by committee members and photographed by The Kynoch Press, Witton, while the butchery pictures, showing precise methods laid down, feature Bob Longden, the IMI Kynoch butcher, at work.'

There were heated arguments about some items, 'but the area of disagreement was never very wide. Committee members often felt strongly about the balance of ingredients in such dishes as curries. But we never adopted a recipe in the



Various cuts of lamb. The butcher, Bob Longden of Kynoch Works, is seen removing the breast

Soup	3,000 gall.
Oven-ready turkeys	20,000 lb.
Roasting meat	15,000 lb.
Potatoes	45,000 lb.
Brussels sprouts	16,000 lb.
Christmas puddings	7,500 lb.
Mince pies	45,000
Custard	1,000 gall.

Crockery	360,000 pieces
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Cutlery	420,000 pieces
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Cooking for the Company at Christmas-time is a major operation – as these vast quantities above indicate. Almost military planning and precision are needed

face of outright rejection by a committee member; we just worked on the recipe – and on him – until he agreed!

Selection had always to reconcile four factors: variety of choice, cost, the average ability of Company cooks, and the pattern of demand. Every dish included in the Manual can be prepared by the cook in even the smallest catering unit of ICI: 'Of course, there will always be some units where the demand for certain dishes will be so slight as to make them hopelessly uneconomic, but the general pattern of menus throughout ICI could radically change if the customer was not merely prepared to experiment but also to accept that some dishes will cost much more than others.'

Once the text was agreed, production problems and proof-checking presented plenty of headaches in a book so crammed with facts, figures and instructions – above all, of exact quantities. While the publisher's and the printer's readers checked for grammar, punctuation and printing errors, the committee had to be responsible for every other detail. 'This was painstaking and time-consuming, but we had to make sure that the purchaser could rely absolutely on the Manual.'

External interest in this publication has been keen right from the beginning. It was originally bought by many thousands of people in many different circumstances: industrial organisations, colleges, public libraries, hospitals, restaurants and guest houses, and in countries as far away as India, Australia, New Zealand, Canada, the USA and South Africa. On this latest edition, the first order received by the publishers was for 70 copies from a firm of caterers in the North of England, while during the first week of publication air mail requests for copies arrived from Australia, Kenya and South Africa.

Association with the publishers dates from the time the first Manual became available to the public. 'We could have published this third edition ourselves, but this would have incurred capital expenditure. The decision to assign the publication rights was taken on terms which enabled us to issue copies within ICI at a far lower cost. And a royalty will be paid to the Company once sales exceed an agreed number. On balance, therefore, I am sure we took the right decision.'

The Manual (as our extracts suggest) has some sensible, sometimes sardonic advice not only for the professional caterer but for his customer too. Especially the kind of customer who may tend to take for granted the whole process by which his meal is created. For the home cook too there are valuable tips and points to watch in, for example, the selection of meat from the butcher. For the serving of several million meals a year at 100 locations is only serving to the individual customer – vastly multiplied. As this article appears, the Company's caterers are organising their Christmas activities. How would you like to cope with the quantities in the table on the left? And this means seven pieces of cutlery and six pieces of crockery for every diner. Just imagine the washing-up!

preserving Canada's past

Bruce Henry

Only about 20 minutes on foot from 'Skyscraper Row' along Dorchester Boulevard, 'le vieux quartier' of Montreal is one of the oldest settled parts of Canada. Until 1823 this area of a few square miles was enclosed by walls originally built to protect the city against attacks by Indians and Americans. Here is the site of the first French settlement in western Quebec, where in 1642 Maisonneuve, a French nobleman, founded Ville Marie, the original stockaded village which developed into the present city of Montreal.

It was for many years the commercial centre of North America when the fur trade was at its height. Where Maisonneuve and his party anchored their ships, at the edge of Ville Marie, today has become one of the largest and busiest river ports in the world.

Like the old parts of most cities, Old Montreal was until recently relatively poor. Most of the buildings are of nineteenth-century origin and built in cut stone, but there are at least a score of eighteenth-century and five or six seventeenth-century fieldstone houses also. Most were deteriorating. Today the old quarter is being transformed. One of Canadian Industries Limited's projects to celebrate Canada's hundredth birthday is the restoration of a house dating from 1807, to be known as Centennial House.

Buildings throughout the quarter are in various stages of renewal. In some cases private individuals have purchased these once fine houses. With the sanction of the Jacques Viger Commission, which is responsible for what happens to the whole area known as Old Montreal, workmen are removing the accumulated dirt and debris of years and restoring original walls and woodwork.

The Jacques Viger Commission, named from Montreal's first mayor, was created in 1961 'to give positive leadership to the many interested people who might want to participate in the improvement, preservation and rehabilitation of this potentially dynamic quarter.'

The core of the old city has been legally declared an historic monument. Anyone who buys land or property there has to submit his plans to the Commission for approval. The results are amazing. Four years ago I visited Place Jacques Cartier, where Centennial House stands. There was hectic marketing activity, as it was still part of the main farmers' market in the city. This has been moved to the new Central Market on Metropolitan Boulevard several miles away.

Now, in a setting reminiscent of a bygone age, Old Montreal is becoming a living, dynamic section of the city. C-I-L's house, at the corner of the Rue Saint-Paul and



Market day, Place Jacques Cartier, Montreal, about 1910

Illustrations: Jacques Delisle



With restoration completed, the house looks very much as it was when first built

Place Jacques Cartier, was a boarding house for dockworkers from the harbour nearby, with a store and coffee shop on the ground floor when purchased in September 1966. Now a plaque near the door reads:

C-I-L CENTENNIAL HOUSE
BUILT 1807
RESTORED 1967
BY CANADIAN INDUSTRIES LIMITED

I visited it with Mr. M. S. 'Mac' Macgillivray, engineer in charge of restoration. It was September, and leaves from the trees in Place Jacques Cartier swept around our feet on the cobblestone square. 'The house will be restored as nearly as possible to its original condition,' he told me, 'in conformity with the Commission's general plan to restore and preserve the old city.'

At the time of my visit, the hoarding which surrounded the house while the outside walls were repaired had been removed. The walls looked remarkably clean. Much of the original stone had been retained, but some had to be replaced. The roof was covered with metal shingles, laid

diagonally in the fashion of the early nineteenth century. 'Even yet it's not really much to look at,' Mr. Macgillivray explained. 'We'll be putting the windows in next week, and then the exterior will resemble closely the house just after it was built in 1807.'

Once the debris had been cleared from the interior, the job of stripping away 150 years of alterations began. Partitions and layers of ceiling came down.

The floors were pulled up. Huge hand-hewn beams, dark with age, were revealed, still in their original positions as they must have been placed by the men who built the house. Although some of the old wood was salvaged, much of it had developed rot over the years and so it had to be replaced with carefully chosen new wood.

'We kept any doorknobs, lighting fixtures or other hardware which we think belonged to the house at the beginning,' continued Mr. Macgillivray. 'We will be able to get other pieces from the city authorities, who run a kind of Old Montreal hardware depot, where all sorts of fixtures, lamps, window and door frames and so on, salvaged from demolished old buildings, are collected and can be purchased for the benefit of restoration.'

No secret passageways or panels were unearthed by the workmen as they ripped out walls and ceilings, but no fewer than five fireplaces which had been bricked up at some point were discovered.

At the time of my visit the interior was a shell of stone walls, which were repaired with mortar mixed according to a formula used at the time the house was built. The



Built by Italian immigrants, the house had thick stone walls and small windows, like the European houses of the time



When C-I-L bought the house, it was being used as a rooming-house with a restaurant and a basket-maker's shop on the ground floor

smell of new wood for floors and stairways blended with those of dust and mortar. For some reason I had the feeling that I had stepped into the past; perhaps the scene of construction 160 years ago was similar to this.

C-I-L hired a researcher to look into the history of the building they purchased. She found that it was built in 1807, on land which had been the site of a palatial chateau. Erected about 1725 by the Marquis de Vaudreuil, a governor of Montreal and later of New France, the chateau became eventually the Collège de Montréal, the forerunner of the present Collège de Montréal at the foot of Mount Royal on Sherbrooke Street.

The chateau burned down in 1803 and the land was subdivided. Some of the lots, including the one on which C-I-L's house is situated, were sold for large homes and the rest was set aside for a market place, called the Marché Neuf because it replaced the old market at Place Royale which had become too small for the needs of the growing settlement.

The house is known to have served at various times as a saddlery, a printing shop, a tailor's shop, a cigar factory and a hostelry. It will still serve practical purposes.

At present, the company is going to use the ground floor and part of the basement as a museum area for periodic exhibitions from its Arms and Ammunition Museum at the Ammunition Works at Brownsburg, Quebec, and for exhibitions of works from the C-I-L Art Collection. The upper floors may become offices, apartments or studios.

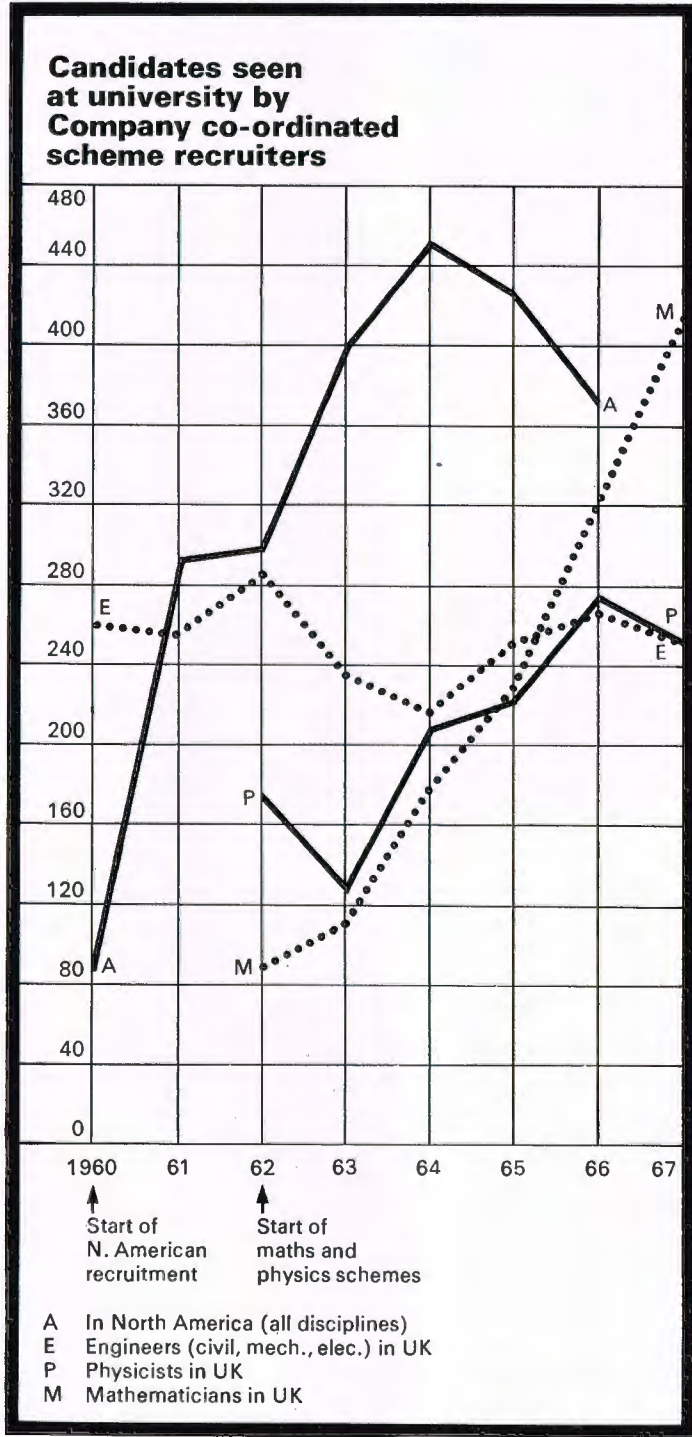
Centennial House will thus join other buildings in the old quarter as part of a living, dynamic community.

People come to the old quarter now to eat in high-class restaurants. They come to visit art galleries, antique shops, night clubs, discothèques and speciality shops, including fashion and handicraft.

It is exciting to meander through Old Montreal. All over there are new-looking buildings, but in the architecture of another age. Taxi stands and parking garages have been abolished. In the Place Jacques Cartier restored cobblestone paving and nineteenth-century lamp posts lend a special charm. Here, weather permitting, artists sell their paintings and florists set up beautiful flower stands. On my visit last September I could see, just across the harbour from the old quarter, the three-dimensional Union Jack atop the British pavilion at Expo 67.

a mark on the future

John Gough



As Britain's biggest employer of university graduates outside the Civil Service and education, ICI recruits on a scale unique in British industry. Every twelve months about 3,600 undergraduates and graduates are interviewed at more than 50 universities and colleges in the British Isles, and 400 British postgraduates at 37 universities in North America. We need graduates because of the nature, size and complexity of the Company's activities, which demand not only the depth of specialist knowledge but the trained minds which a university education encourages.

The numbers are large: in ICI today there are in the UK alone some 7,100 graduates whose original disciplines include chemistry (3,400), engineering (1,300), chemical engineering (450), physics (500), mathematics (225) and arts (750). And, while the latest figures show that the annual total of all new graduates (first and higher degrees) entering employment other than medicine in the UK is only about 20,000 a year, we recruited 937 in 1965 and have averaged 570 in recent years. Despite the numbers involved, every stage of recruitment is concerned with individual people – each one of them very different – and any system which ignores this is self-condemned.

Although graduate recruitment accounts for only about one-twelfth of the total number of staff joining ICI each year (and just over one-thirtieth of all new starters) it has special problems of its own. As the majority of our graduates are scientists and engineers, the task is made more difficult today by a pronounced swing away from science: this is illustrated by the unfilled places in science and technology at the universities.

The graduates we need have to be attracted before we can select them, and recruitment can be considered in these two main phases. As far as the first phase of recruitment is concerned, the name and reputation of ICI today is enough to attract some 10,000 letters to our London offices alone every year; their writers range from schoolboys to Air Vice-Marshals, all of whom one way or another have their eyes on employment with ICI. Their view of ICI is affected by such matters as the quality of our scientific and technological work as recognised through our extensive scientific contacts, and by our inventions and publications; our actions as an employer; the quality of people we send to represent us at conferences; by the public speeches made by senior ICI officials; our efficiency as a firm; our commercial success and attitudes: by all these things – including the attitude of the Press towards us – and many more.

In a survey of young technical staff conducted by Social Surveys (Gallup Poll) Ltd. this year, we came at the top of a poll covering 33 very large firms as the most desirable employer. But the competition for scarce graduates of high quality is now extremely acute, and even a company with this kind of reputation could not obtain enough suitable graduates by waiting for them to apply. And so details of the jobs we have, and the interest and responsibilities of these jobs, must be brought individually to the attention not only of undergraduates but also of professors, appointments boards, parents and others. Vacation courses at Divisions, visits to factories by schoolboys, special lectures at universities, talks on ICI careers at conventions, universities and schools, contributions to journals, all form part of a planned service of information. But they are not enough, and so a large variety of special literature is prepared and distributed. There is a Company recruitment booklet, special booklets describing work in each Division, and a whole range of leaflets which describe as factually as possible the kind of work being undertaken by

Arrangement of UK universities into recruitment circuits



Universities and colleges contained in each circuit

- 1** Aberdeen
St. Andrews
Dundee
Edinburgh
Heriot Watt
Glasgow
Strathclyde
- 2** Durham
Newcastle
Lancaster
- 3** Leeds
York
Hull
Bradford
- 4** Manchester Univ.
Manchester CST
Salford
Sheffield
- 5** Belfast
Dublin TC
Dublin UC
- 6** Liverpool
Bangor
Keele
Birmingham
Aston
Warwick
Aberystwyth
- 7** Leicester
Loughborough
Nottingham
- 8** Bristol
Bath
Cardiff
Welsh CAT
Swansea
Exeter
- 9** Cambridge
East Anglia
Essex
Kent
- 10** Oxford
Reading
Southampton
Sussex
- 11/12** London
Brunel
City
Surrey

graduates coming to us from the main areas of knowledge in which we are interested. For 1968 there will be five main titles devoted to fields of study (e.g. engineers, chemists, mathematicians) and seven devoted to function (e.g. research opportunities, management services, sales and marketing). In addition there is a special publication for research men listing scientific publications by ICI men and women. Most of these leaflets have to be rewritten or revised each year, so varied are the developments which occur in every twelve months' period.

The fact that recruitment literature has changed markedly from the old glossy handout which tastefully illustrated a corner of the lab but was stubbornly silent about what you did when you got into it is an encouraging sign of the times: both employers and undergraduates have decided that the quality of work is more important than the size of the playing fields! The literature is supported by advertising in selected national newspapers and careers journals and in one university newspaper in each university. In addition we send all university appointments board secretaries a newsletter giving details of our requirements and our policies.

A double task

All the activities outlined above have an immediate short-term effect on the ICI image. But because an image is only a reflection, what we *are* and what we *do* is in the long term more important than what we *say* we are or *say* we do. If we forget this we could become like a man who buys more and more expensive shaving-mirrors in the belief that they will improve his appearance. Graduates, on the whole, do not forget this, and their judgment of an employer is much influenced by their view of the people they meet and the work they can observe. Those who interview graduates have therefore a double task: to represent the Company fairly and to judge a candidate's suitability wisely.

This judgment about the candidate, or process of selection, is the second phase of recruitment. It divides into two stages: shorter interviews at universities and longer, more penetrating discussions later at Divisions for those whom the university selectors have regarded as suitable. The importance of this particular job and of the training which it requires can hardly be over-emphasised.

The organisation which supports both stages has to be able to cope with large numbers of applicants in a very short time – six to eight weeks. Plans have to be made and carried through

by Divisions and Staff Appointments and Careers Section at Millbank, which may involve some 4,000 candidates a year.

The interview at the Division – the second stage – is where the final decision to employ or not to employ is taken. Many improvements have recently been made in this procedure, but the biggest organisational changes concern the first stage – the initial interview at the university itself.

Each Division used itself to undertake this task for all fields of study in which it was interested. After the war, however, a new method for interviewing arts graduates was set up which involved preliminary interviews at the universities on behalf of the Company as a whole. This new principle meant that each university was visited by one interviewer or set of interviewers who passed on the names of suitable candidates to one or more Divisions. These 'first-line' interviewers in fact had exchanged their Divisional for Company hats. The same principle was adopted, with variations, for engineering applicants in 1956, for the trial scheme of recruitment in North America in 1960 (followed by the full scheme in 1961, which has been running ever since); and by Company schemes for mathematicians and physicists in 1962.

Fewer interviewers

A great deal of work to improve the operation of all these schemes has paved the way for a trial Company scheme for chemists, which will take place in 1968. Here rationalisation has some obvious practical advantages, and the trial should determine if they outweigh any disadvantages which might occur. The increase in the number of universities and colleges to be visited has meant a large increase in the number of interviewers which Divisions have had to provide. In 1966 – not a peak year – 2,738 interviews had to be arranged at universities for 1,500 chemists: this meant 1,238 duplicated interviews. The steady increase of employers wishing to visit universities has meant an almost insupportable task for their appointments boards, so that a reduction of ICI visitors would be a great help to them. A fully co-ordinated scheme of university visits for chemists would reduce the number of interviewers from over 200 to 70, yet none of these would have to visit more than six universities.

We can also reduce the time involved in travelling by grouping universities into circuits. Under this arrangement each interviewing team is made up of two interviewers drawn from two different Divisions, one of each pair of interviewers coming from the same Division to ensure easy co-operation between teams concerned with different fields of study.

The scale of some of the co-ordinated schemes is illustrated on page 202. The schemes for physicists and mathematicians are the latest to be fully operative and show the effect Company schemes of this kind can have. The engineering scheme, which has been running for much longer, shows a consistency which is remarkable when it is remembered that competition has enormously increased, while in some years the output of engineers from the universities has actually gone down. Of course, the one which has had most attention in the Press has been our Company scheme of recruitment in North America. The recent publication of the Jones Report on the Brain Drain was welcomed by the Company, which for the past seven years has operated a Brain Drain in reverse over there. For eight years we have sent teams of scientists to visit North American universities and nearly 150 scientists have come back to Britain to work in ICI through this scheme. This year the six members of the team covered 80,000 miles in five

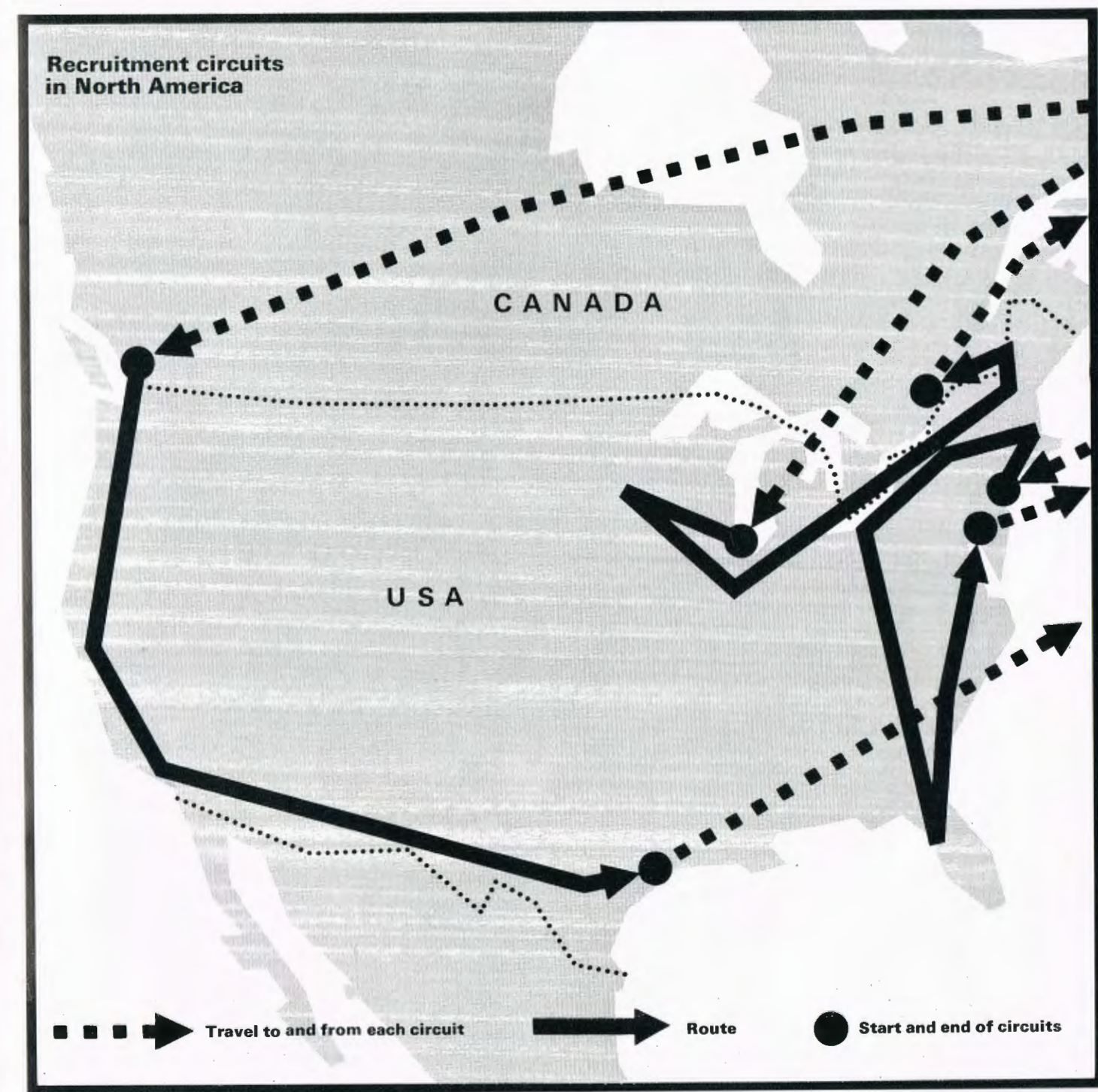
weeks visiting 37 universities, from Vancouver to Gainesville, Florida, and from New York to San Francisco.

Although the first stage in all co-ordinated schemes is on a Company basis, this does not alter a Division's authority over final selection nor does it interfere with the valuable network of contacts which our scientists have at universities.

All these activities generate large quantities of paper. Career details, testimonials, interview reports, miscellaneous personal documents, records of arrangements made by Division Personnel Departments and by universities' appointments boards – all these must be carefully recorded and filed, yet be instantly available. This has meant the design of specialised forms and equipment, and the setting up at Millbank of a small operations room which by 1969 may have to handle up to 75,000 individual pieces of paper in the short recruitment

season of six weeks. In this room we can check at a glance who has been seen by any of the interviewers in the co-ordinated schemes at every university, what the result was and how he is progressing. Studies are being made to see what help we can get from microfilms and perhaps computers.

It may seem strange to begin by emphasising the importance of the individual, and to end by referring once more to pieces of paper. Yet the accuracy of those pieces of paper is essential: few practices so quickly destroy the personal approach to an individual as calling him by the wrong name, asking him questions about someone else's university, or sending him two letters with conflicting decisions by the same post. And so, because the ICI of tomorrow is being built today, to make a mark on one of those pieces of paper is to help to make a mark on the future.



chemistry on stamps

Ian Finlay

The first adhesive stamp for the prepayment of postage – the famous Penny Black – was issued by Great Britain on 6th May 1840. Since then almost every country has issued its own stamps – often in numbers far exceeding local postal requirements – and the number of different individual stamps issued so far has reached about 130,000.



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Postage stamps were initially regarded as purely utilitarian objects. Few people at the time thought that they would prove very practicable or that there was any point in saving these coloured bits of paper. However, it was not long before their financial and educational value was realised, and by the 1860s they were becoming sought after by collectors. The relatively early appearance of forgeries was also a sign that stamps had come to stay! The first stamp designs were, naturally enough, modelled very much on coinage. But by the turn of the century it had been recognised that they were a very useful form of propaganda by which countries could draw attention to their local products and traditions and also honour their famous men and women. This switch in design made the stamp album an immeasurably more colourful and interesting object. Nowadays it is difficult to think of anything which has not at some time or other been featured on stamps.

Stamp collecting, or philately, has been called the king of hobbies and the hobby of kings. It certainly has few rivals in general appeal, and it is also true that several rulers have been collectors. There are many reasons for its popularity. It is a very personal hobby. You can collect just what you want, so that your collection becomes an extension or reflection of your own personality. You can spend as much or as little on it as you wish or can afford. You can approach it from many different points of view.

For example, you can collect the stamps of one country or stamps depicting one particular object, or you can concentrate on a single issue, studying all the varieties of shade, perforation, methods of printing, paper and watermarks involved. You can study the postal history of your own town or find periods of boom, inflation or depression reflected in stamps. You can even paper the walls of your room with stamps, as some people did in the early days of collecting. It is a hobby which offers something to everyone, quite apart from the potential financial investment involved. It is, however, a dangerous field in which to speculate without knowledge and experience. Fashions in stamp-collecting change as much as in other activities, and some countries issue stamps more as a means of revenue than for purely postal purposes.

Stamp-collecting which concentrates on the 'picture on the stamp' rather than anything else has become known as thematic or topical collecting and tends to be popular with people working or active in specific fields. Thus, many doctors collect stamps of medical interest, musicians those of musical interest, naturalists those of animals. Many stamps depict raw materials, processes, organisations and discoveries of interest to people in the chemical industry. A few are illustrated here and link up in some way with the interests and activities of ICI. They are a selection only, although I have tried to make it as wide as possible. Most of the stamps shown are fairly recent issues. Chemistry as a theme on stamps is a relatively late arrival, and many of the developing countries are only now establishing a chemical industry of their own or discovering how it can raise standards of living. It is very appropriate that a Swedish stamp (1) issued in 1946 should feature a portrait of Alfred Nobel. It commemorated the 50th anniversary of the death of this famous scientist and creator of the Nobel Foundation, after whom a Division of ICI is also named. It was principally in the development of explosives that Nobel gained his reputation – he invented and patented such explosives as dynamite and ballistite.

The nineteenth century saw the birth of and the first great developments in organic chemistry. One of the most important



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was the discovery of the structural formula of benzene (C_6H_6) by the German Kekulé in 1864. The centenary of this event was commemorated by a West German stamp (2) issued in 1964, showing the now very familiar structural formula of this important raw material. Research is also the subject of a stamp (3) issued by Czechoslovakia in 1954. It shows a chemist examining a substance in a test-tube against a background of a blackboard on which is written the formula of the carboxyl group. The East German stamp (4) of 1959, marking the tenth anniversary of the German Democratic Republic, shows a chemist against a background of stylised chemical plant and part of the formula of an organic compound.

One often forgets the remote places from which many raw materials used in chemical processes come. Copper is used to a large extent in steam boilers, electrical wiring and electrotyping apparatus, as well as in numerous alloys. One of the forms in which it occurs is copper pyrites ($CuFeS_2$), and a pyrites mine appears on the stamp from Cyprus (5) issued in 1955. Gypsum or natural hydrated calcium sulphate ($CaSO_4 \cdot 2H_2O$) is an important raw material for plaster of Paris, still used extensively as a moulding material. Large amounts come from Jamaica, which issued a stamp (6) in 1964 showing gypsum being loaded on to a ship.

Chemical processes cannot be shown in great detail on postage stamps, but reference to them is often made. The Russian stamp (7) issued in 1964 relates to the synthetic fibre industry, which is now an important part of that country's economy. Incidentally, Russia has issued more individual stamps than any other country, the present total being well over 3000. India is another country which in recent years has become industrially important. This stamp (8) was issued in January 1962 to mark the inauguration of the Gauhati oil refinery and shows part of the plant. Gauhati is in the district of Assam on the Brahmaputra river and is an important centre of river trade. Formosa or Taiwan is another territory which is now beginning to develop a chemical industry. Pharmaceuticals are featured on a stamp (9) issued in 1964 which shows a girl operating a machine in a pharmaceuticals factory.

End products of the chemical industry or in which the chemical industry has played a part are well represented. Examples shown are a Rumanian stamp (10) issued in 1962 to mark the fourth Sample Fair in Bucharest. It refers to various chemical products, including dyestuffs. Chemistry also plays an important part in modern printing techniques, and the Swiss stamp (11) issued in 1957 shows the inking rollers of a printing machine.

Plant protection in all its aspects is a significant factor in raising production, particularly in developing countries. Spraying with insecticide is shown on the 1960 stamp (12) from the Chinese People's Republic. It is from a set devoted to public health. In 1962 there was a worldwide campaign to eradicate malaria. Among the countries most affected and which issued a stamp as part of the campaign was Cuba. The stamp (13) looks like a page from a textbook on drugs. It shows the structural formulae of various drugs used in treating malaria together with the cinchona plant from which they are obtained.

Finally, the important part played by professional organisations in the field of chemistry is recognised on the stamp (14) issued by the USA in 1951 to mark the 75th anniversary of the American Chemical Society. The symbol of the Society is set against a background of chemical plant and equipment.

people, projects, products



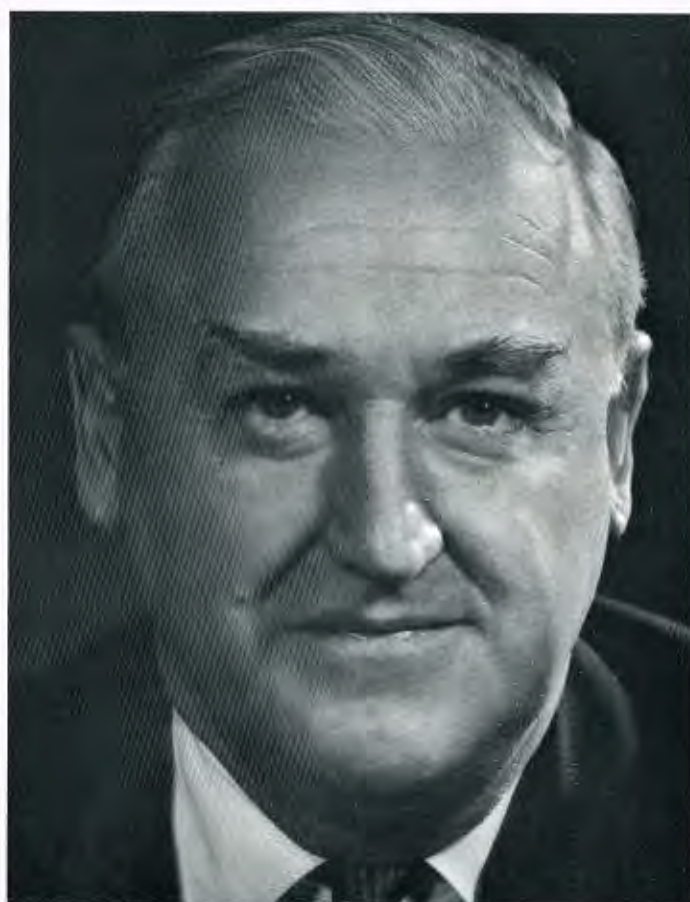
Photograph: Michael Taylor

Sir Paul Chambers

Sir Paul Chambers to retire from ICI

After more than 20 years' full-time service as an executive director on the ICI Board, eight of them as Chairman, Sir Paul Chambers will retire from ICI on 31st March 1968. He joined the Board in July 1947, becoming Finance Director in 1948, a Deputy Chairman in 1952, and Chairman in March 1960. Just a short while before his decision was announced, he had presided at a long-service award dinner in IC House — an occasion with a difference, when his own 20 years' service was recognised in the traditional manner. In accepting his resignation his Board colleagues expressed their admiration for Sir Paul's outstanding contribution to the Company as a director over so many years, and recorded their warmest thanks for this service and for his wise and unfailing leadership in the eight years of his chairmanship, during which the most harmonious relationships have existed on the Board. During his term of office, Company turnover has increased by £400 million in the face of growing competition at home and abroad. Several key manufacturing operations have been greatly scaled up, while the overseas activity of the Group has also been expanded, largely to secure outlets for the output made possible by bigger plant. In 1966, sales abroad equalled those at home for the first time in the history of the Company.

Sir Paul came to ICI after a distinguished career in public service, during which time his appointments included Taxation Adviser to the Government of India, Commissioner of Inland Revenue, and Chief of Finance Division, British Element, Control Commission for Germany. He has also served on a number of government committees, and was



Photograph: Karsh, Ottawa

Sir Peter Allen

chairman of the Committee of Inquiry into London Transport, 1951–53. From January 1956 until May 1960 he was a part-time member of the National Coal Board. He was President of the National Institute of Economic and Social Research from 1955 until 1962, and is currently President of the Institute of Directors. He was knighted in June 1965.

Sir Peter Allen

From 1st April 1968 onwards Sir Peter Allen will be Chairman of ICI. Aged 62, and educated at Harrow and Oxford, Sir Peter is a chemist by training whose whole working life has been spent with the Company. Thirty-nine years ago he joined the old Brunner, Mond & Co. (now part of Mond Division) as a works chemist, and served in many departments there before becoming a director of what was by then the Alkali Division in 1941. During 1942 he became first a director and then managing director of Plastics Division, and in 1948 he was made its chairman. Appointed to the ICI Board in 1951, he was President of Canadian Industries Ltd. from 1959 to 1962. Soon after his return to the UK from Canada he was appointed a Deputy Chairman of ICI. Active in many fields outside ICI, he has been particularly concerned with the export problems of British industry as a member of the British National Export Council and chairman of its Committee for Exports to Canada. He has also made a special study of productivity in North America. In June 1967 he was knighted for his services to exports. A railway enthusiast whose interest has taken him to the far places of the earth, Sir Peter has written several books on railways at home and abroad. Other leisure activities include foreign travel and golf.

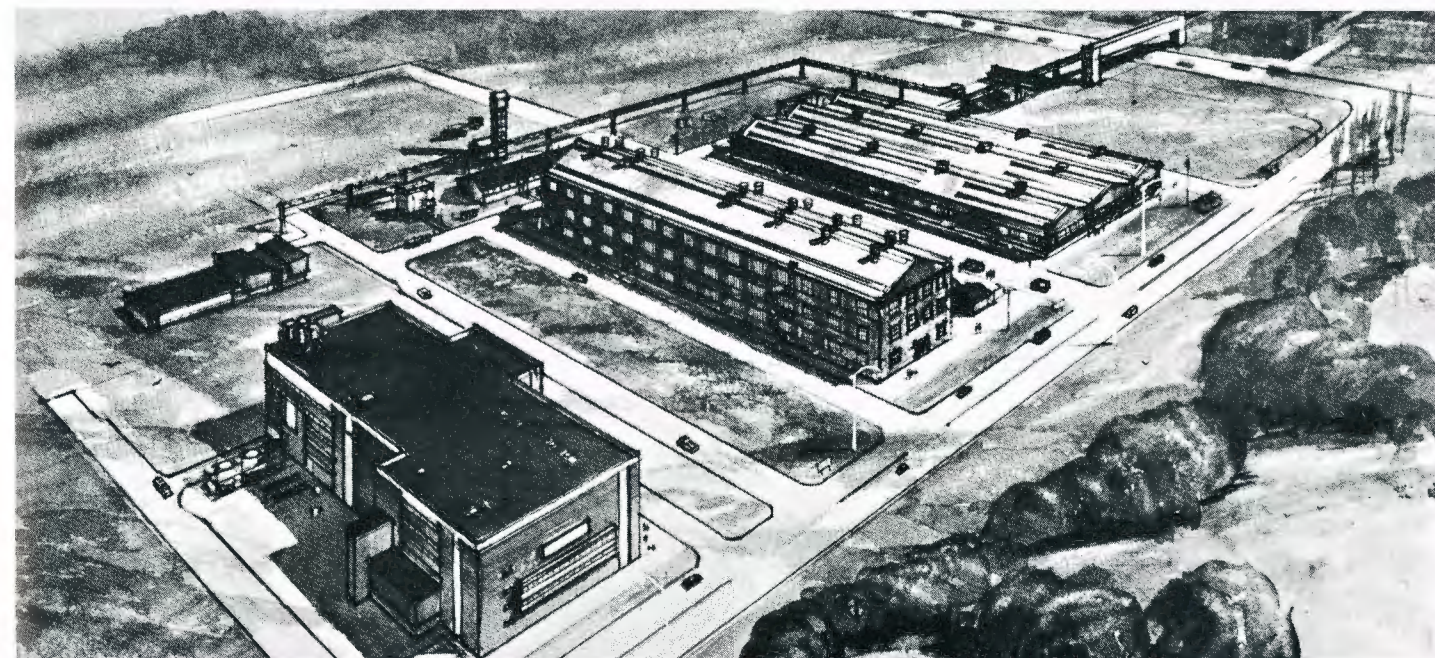
New £5 million plant for Grangemouth

Dyestuffs Division are to build a £5 million plant at Grangemouth for the manufacture of 'Procion' and 'Procion' Supra dyestuffs, the fibre-reactive dyes first marketed by ICI in 1956. The new installation will help ICI to cater for all home market demands in the foreseeable future and still export 80 per cent of its output to all parts of the world.

Site clearance on ICI ground adjacent to the Company's Grangemouth Works begins this month and completion is scheduled for mid-1969. The factory building, seen left foreground of drawing, will measure 200 feet by 100 feet and will be 72 feet high. As well as factory space and associated storage areas, the project will include offices, a maintenance workshop, and a laboratory for testing and 'trouble-shooting'. When fully operational, the plant will employ about 100 people, most of whom will be recruited locally. The 'Procion' dyestuffs combine

chemically with textile fibres rather than attach themselves physically, unlike natural (and all previous synthetic) dyestuffs. The world's first three fibre-reactive dyes, marketed by ICI in 1956, have now increased to a range of more than seventy colours. Their brilliance of shade, combined with high fastness to washing, was largely responsible for the introduction of today's bright, 'with-it' fabrics.

The two men primarily concerned with this technical revolution in textile dyeing and printing, Dr. W. E. Stephen and Mr. (now Professor) I. E. Rattee, were awarded the Gold Medal of the Society of Dyers and Colourists. Their lead is still being followed: for three consecutive years from 1964 this medal has been awarded to employees of the Division. In all, since 1941, gold medals have been awarded by the society to seven scientists, all of whom, at the time of the award, were employees of Dyestuffs Division.



Fertilizer plant for Kenya

At the invitation of the Kenya Government, Albatros Superfosfaat-fabrieken NV of Utrecht, Holland, and Covenant Industries Ltd. (COVIL) of London — an associated company of ICI — together with the Development Finance Company of Kenya Ltd. (DFCK), have formed a consortium to manufacture and sell nitrogenous fertilizers in Kenya. To undertake this business, the consortium has formed a new Kenya-based company, Triangle Fertilisers Ltd., in which COVIL and Albatros each has a 40 per cent holding and the DFCK 20 per cent. Triangle Fertilisers will erect a £5 million plant on an 80-acre site at Mombasa. Due for completion in 1970, the plant will have a capacity of 107,000

tons of calcium ammonium nitrate, which will be made from imported ammonia feedstock. The plant design is being undertaken jointly by ICI Agricultural Division and Albatros.

At a press conference following Triangle Fertilisers' first board meeting on 17th August, Kenya's Minister for Finance, Mr. J. Gichuru (third from left), announced the formation of the new company. He is seen with members of the Board: Dr. A. R. Kemble, managing director of Twiga Chemical Industries Ltd., and Mr. T. S. Jenkinson of ICI African Department — both representing Covenant Industries Ltd.; Alderman C. W. Rubia (Chairman), a former Mayor of Nairobi and chairman of DFCK; Mr. F. Zee and Mr. R. Sjoukes — both of Albatros.

Die große Mehrheit der Teilnehmer (92,5%) ist weiblich, 7,5% männlich.

These were the longer-term objectives. But, as the opposite page shows, the visits also had an immediate effect by making the headlines in newspapers, magazines and specialist journals, from Helsinki to Lisbon and from Vienna to New York.



making the headlines

RIGHT: Well known to millions of British television viewers, Bertram Mycock is the BBC's chief industrial correspondent

BELOW: Richard Spiegelberg of 'The Times' at the Wilton press conference at the end of the UK journalists' tour



'Things come to life,' Sir Paul Chambers said to the journalists, 'if you can see the men on the spot, the workers on the spot, the works managers here and there, see the plants and feel the atmosphere, and you are likely to do your job better if you have a picture and an understanding instead of just a lot of facts.'



ABOVE: Two Amsterdam newspapermen, H. A. Schouten (left) of 'De Tijd' and J. G. Wolters of 'Trouw,' at Wilton

RIGHT: London-based American journalists in the UK party included Clare Cotton of the 'Oil, Paint and Drug Reporter'



ABOVE: Senor J. Torres of 'La Vanguardia,' Barcelona, talks with Mr. B. M. Carney (centre) of HOC Division and Mr. B. Estruch, Agricultural Division



LEFT: Dr. A. Toscano (left) of the 'Il Sole 24 Ore,' Milan, with Dr. D. J. Jones, a deputy chairman, HOC Division

ABOVE: B. A. Bostrup of 'Norges Handels,' the Norwegian journal of commerce and shipping, putting a question at the Wilton press conference



RIGHT: Ken Clay, city editor of the Exchange Telegraph press agency, at the Wilton press conference in the Works club



RIGHT: Miss Mary Goldring, industrial editor, 'The Economist,' was one of 3 women journalists in the UK party



LEFT: On arrival in Holland the UK party were joined at Rozenburg by a group of English-speaking journalists from Denmark, Finland, Norway and Sweden, who stayed with them for the rest of the tour. One of the Finns, Mr. B. Zilliacus of 'Hufvudstadsbladet,' in the packing section of the Rozenburg polythene plant

BELOW: The UK and Scandinavian groups were welcomed to Rozenburg by Mr. A. Van Namen, a managing director of ICI (Holland), who described the growth of the site since work began only six



years ago on land reclaimed by the dumping of sand to a depth of 15 feet. He spoke of its place in ICI's pattern of development in Europe and particularly of the technical and commercial links with ICI plants on Tees-side, for raw materials and intermediates

LEFT: after touring the Rozenburg site the UK group were taken for a meal and a press conference in the restaurant at the top of the 'Euromast' tower which overlooks the port of Rotterdam, one of the busiest ports in the world. There Mr. P. T. Menzies, a Deputy Chairman of ICI, and Mr. D. M. Bell, chief executive of ICI (Europa), explained to them the recent development of ICI's manufacturing and sales activities on the Continent

making the headlines

The Continental party included journalists from nine countries. To overcome language difficulties, interpreters travelled with them, brochures and Press releases were printed in English and five other languages – and at a Wilton press conference, where Sir Paul Chambers answered questions for about 90 minutes, simultaneous translation was provided in English, French and German

Colin Jones (third from right), a special writer with the 'Financial Times,' was among this group of UK reporters as they toured one of the new 300,000-tons-a-year ammonia plants at Billingham. They also saw the recently-completed urea plant, which has a capacity of 1,000 tons a day, and heard how Agricultural Division's steam-naphtha reforming process for making ammonia or town gas is being used in almost 300 units built or under construction in 26 countries throughout the world. The party also visited the new methanol plant at Billingham before moving on to the North Tees site and then to Wilton Works on the other side of the river. There they saw nylon extensions, a 450,000-tons-a-year naphtha 'cracker' under construction, and a plant which will make ICI's latest plastics product, 'TPX' methylpentene polymers

From the time he met them on their arrival at Wilton until the start of the 'UK' press conference, at which he answered questions for more than an hour, Sir Paul Chambers was continually surrounded by journalists anxious to talk with him informally on many topics. The composition of the group changed as reporters whose questions had been answered were replaced by others with still more questions to ask – but the numbers remained constant, except during lunch. Even then Sir Paul shared a table with some of the reporters

Photographs: Michael Taylor and Agricultural and HOC Divisions' Photographic Units



people in print

Stewart Taylor is petrol sales manager, HOC Division. He served two years in the Royal Air Force before studying chemistry at Magdalen College, Oxford (1953–57), and chemical engineering at Imperial College (1957–58). After a period in the Research Department, he has worked mostly in sales control on various HOC products since 1962. Is a keen gardener, traveller, stamp collector, and wine-taster.



Stewart Taylor

James Gilks is technical manager, petrol, and petroleum anti-oxidants, in the Technical Service and Market Development Department, HOC Division. After taking his BSc in chemistry at the University of Nottingham in 1951 he followed it up with a PhD thesis on National Products in 1953. Then he spent some years in the fine chemical industry before joining the Heavy Organic Chemicals Division in 1958.



Dr. James Gilks

Reg Stinton is the Company's chief catering adviser. He joined ICI in 1944 after four years at the Army Catering Corps Training Centre, following 16 years' experience in hotels and restaurants in the UK and on the Continent. He is a Fellow and deputy president of the Hotel and Catering Institute and last October was appointed as one of the first members of the Hotel and Catering Industry Training Board. His hobbies are gardening, all kinds of fishing – and cooking.



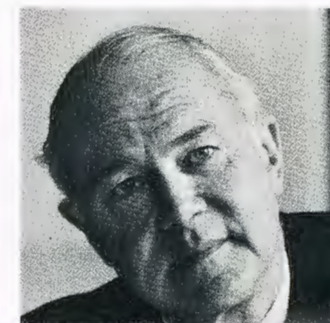
Reg Stinton

Bruce Henry is a publications assistant in the Advertising and Public Relations Department of Canadian Industries Ltd. in Montreal. He spends much of his spare time exploring the byways of the old city. A graduate in English of the University of Western Ontario at London, Ontario, in 1965, he did some schoolteaching and worked for a short period in government public relations before joining CIL in 1967.



Bruce Henry

John Gough is head of the Staff Appointments and Careers Section of Central Personnel Department. He joined ICI in 1935 as a labour trainee at Castner-Kellner Works. He later joined the Magazine and became editor in 1937. After the war he joined the British Council, first as assistant representative in Syria and the Lebanon and then as appointments officer in London. In 1950 he joined the BBC, where he became assistant head of Central Establishment, returning to ICI in 1956.



John Gough

Ian Finlay is the translator with ICI Fibres Limited at Harrogate. He joined the then 'Terylene' Council in 1952, having come to Europe from Australia in 1950. He studied medicine, modern languages and music at Melbourne, Münster and Amsterdam. A member of the Council of the Institute of Linguists, he has translated several books, and has contributed nearly 200 articles to a variety of publications on philately, music and languages. He has also written a reader for German students of English and a book for children on stamp-collecting.



Ian Finlay

Philip Reilly is a member of the Internal Information Unit at Head Office, which among other things produces the ICI Magazine.

ICI Magazine is published for employees every other month, price 4d. Articles, photographs and suggestions for articles are invited from members of the Company. They should reflect first-hand personal experience, interests or ideas, arising either from the writer's own job or from his leisure activities. Payment is made for those accepted. The Company does not necessarily endorse the views of the contributors.

ICI

magazine

One of the plants from which HOC Division obtains its petrol – the separation area of the aromatics plant on the North Tees Works. Its capacity is 400,000 tons a year

Photograph: J. Selwyn Fell

